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U.S. Department of Defense

MHS MILITARY HEALTH SYSTEM

OCIO Office of the Chief Information Officer

HIMSS 2010

03 / 03 / 10

Battlefield to the Homefront:
Lessons Learned from the Premier Global Electronic Health Record

CAPT Michael Weiner, DO
Deputy Program Manager & Chief Medical Officer
Defense Health Information Management System (DHIMS)
Falls Church, VA

Wednesday, March 3, 2010
1:00 – 2:00 pm
HIMSS10 Annual Conference & Exhibition
Georgia World Conference Center
Atlanta, GA

Conflict of Interest Disclosure

CAPT Michael Weiner, DO

Has no real or apparent
conflicts of interest to report.

Session Objectives

- **Objective 1:** Understand the current state of the military's electronic health record (EHR).
- **Objective 2:** Understand the benefits of an EHR system to a transient population of military clinicians and patients.
- **Objective 3:** Reflect on the challenges presented by the implementation of an EHR in both fixed and mobile military treatment facilities around the world.
- **Objective 4:** Examine the lessons learned from EHR implementation and determine how they can be used in the way ahead.

DHIMS in the Department of Defense (DoD)

Department of Defense

Army

Navy

Marines

Air Force

Military Health System

Joint Medical Information Systems

Office of the Chief Information Officer

Defense Health Support System

Defense Health Information Management System

Tri-Service Infrastructure Management Program Office

DHIMS Program Office

- Develops **clinical information management applications** for the Sustaining Base and extends those capabilities to the Theater of Operations
- Provides **comprehensive health information technology solutions** that seamlessly captures, manages and shares healthcare data for the U.S. Military's electronic health record (EHR)
- **Manages, develops, implements and sustains** products/systems in accordance with Department of Defense (DoD) and Joint Medical Information System (JMIS) acquisition guidelines and regulations

DHIMS Areas of Responsibility
Information Management/Information Technology (IM/IT)

- Ancillaries
  - Laboratory, Radiology, Pharmacy
- Blood Management
- Case Management
- Clinical Decision Support
- Consults/Referral Management
- Dental
- DoD/VA Data Sharing
- Health Surveillance
- Imaging
- Inpatient
- Longitudinal Health Record
- Medical Command and Control
- Medical Planning
- Medical Readiness
- MEDLOG Support
- Order Entry/Results Retrieval
- Outpatient
- Patient Administration
- Patient Tracking
- Personal Health Record
- Population Health
- Preventive Health
- Spectacle Requisition
- Tele-Health
- Theater Occupational/ Environmental/Radiological Health
- Trauma Registry Documentation
- Traumatic Brain Injury/ Behavioral Health (TBI/BH)
- Utilization Management
- Veterinary Medicine
- Workload Accounting

Evolution of DoD's Electronic Health Record

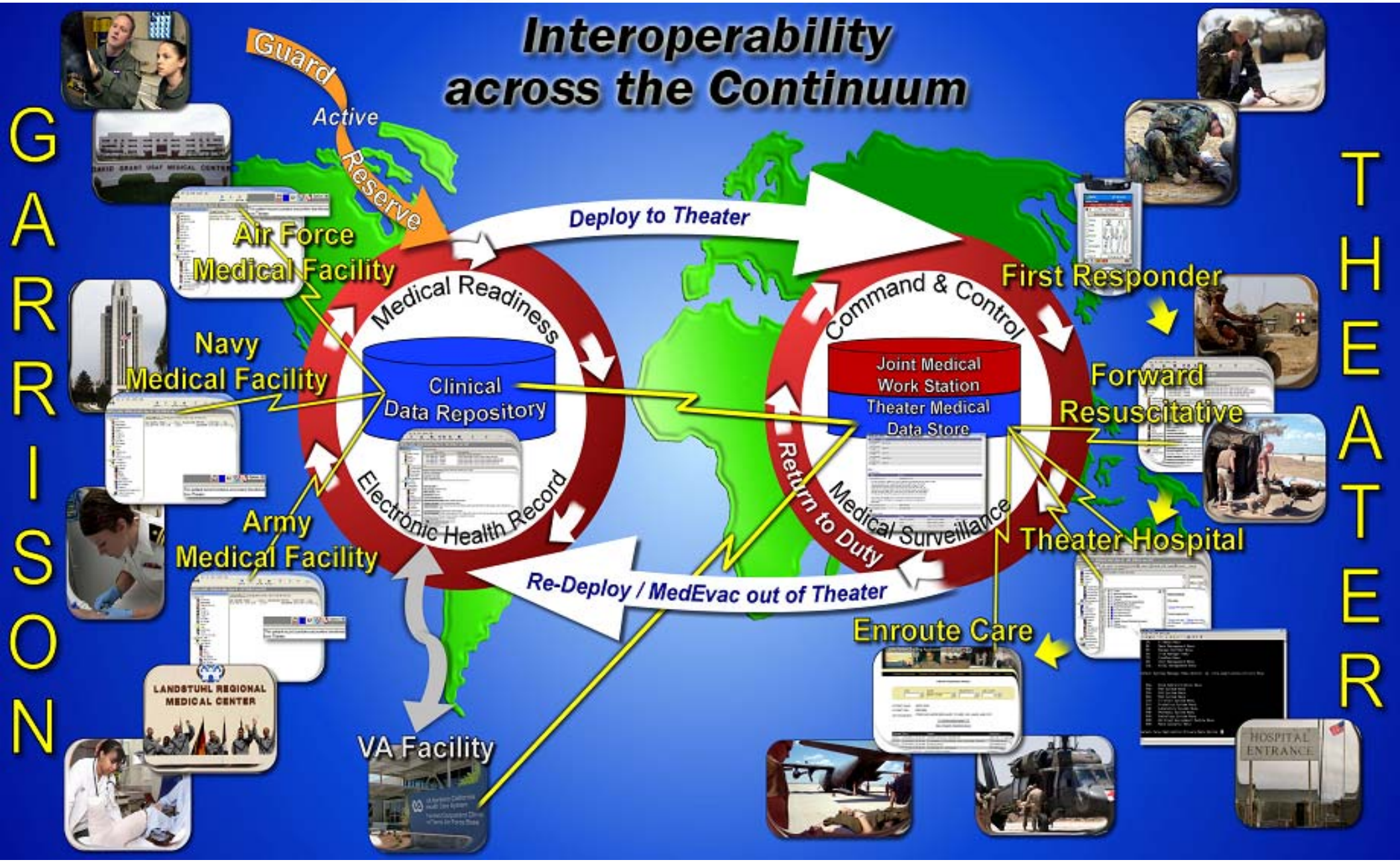
From first concept development of facility-centric capability to worldwide deployment of patient-centric system at all DoD military treatment facilities (MTFs)

2009	Strategic Planning for EHR Way Ahead
2008	Began TMIP Block 2 deployment (EHR first time on ships)
2007	Began initial implementation of updated inpatient EHR (Essentris)
2006	AHLTA Block 1 worldwide deployment completed to all MTFs
2005	Initial EHR in 77 MTFs and 11 time zones
2004	Worldwide implementation of global system begins
2003	Initial TMIP-J deployment to Theater
2000–03	Further concept development: application / infrastructure refinements
2000	CHCS II initial deployment
1998	CHCS II initial concept development (patient-centric system)
1996	CHCS - providing CPOE - completed worldwide. Concept exploration for clinically-oriented graphical user interface underway
1988	Limited early inpatient documentation (CIS)
1988	CHCS development begins; deliver CPOE and MTF-centric EHR. Integrates outpatient ancillary services - laboratory, radiology, and pharmacy – providing MHS' first online MTF hospital-centric clinical support system
1986	Interim Tri-Service Micro Pharmacy System: Automated support for in- and out-patient pharmacy services In 240 facilities by 1989
1981	Deployment of standalone medical information systems TRIPHARM, TRILAB, TRIRAD, TRIPAS and AQCESS (Quality of Care Evaluation) in 19 MTFs
1979	First concept development to provide Computerized Physician Order Entry (CPOE) capability

DoD's Healthcare Information
Support for the Warfighter Mission

- Medical Situation Awareness for Command and Control
- Force Health Protection
- Medical Readiness
- **Transient Patient Population**
- **Transient Healthcare Team**
- Austere Environments
  - Theater Operations
    - Shipboard Operations
    - Medical/Aeromedical Evacuation
- Security Requirements
  - Secret Internet Protocol Router (SIPRNet)
  - DoD Information Assurance Posture
- DoD Acquisition Process
  - Interdependencies with other departmental programs

EHR Support to the Continuum of Care

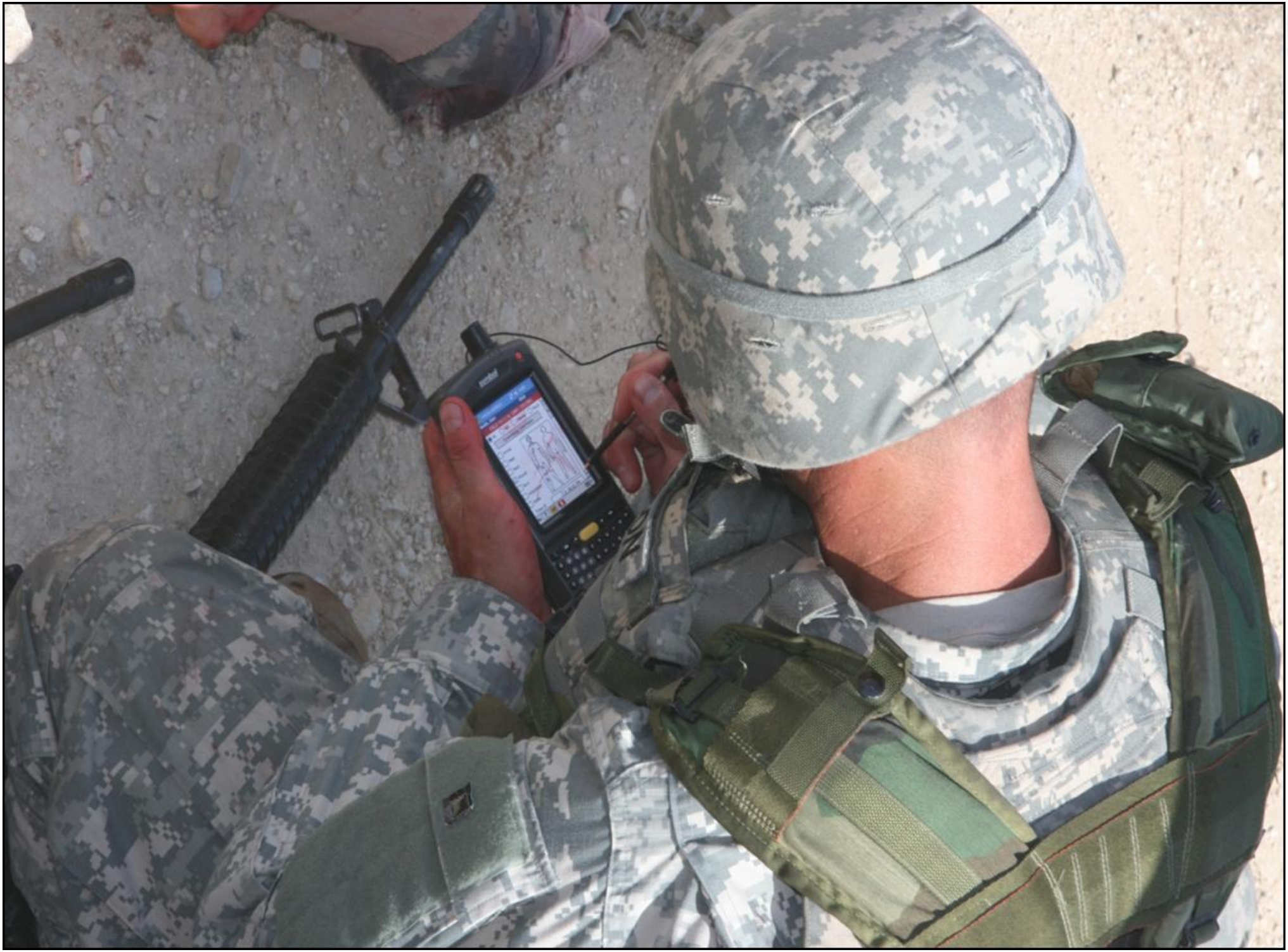


AHLTA is…

AHLTA Garrison
(Hospital)

AHLTA-Mobile

AHLTA-Theater



DoD EHR Family of Systems

- **AHLTA-Garrison Outpatient Documentation**
  - Covers every time zone
  - 77,000+ active users
  - 110,000+ end user devices
  - 140,000+ new encounters daily
  - 9.6+ million beneficiaries with clinical data
  - 65+ Terabytes (mostly non-image)
- **Essentris® Inpatient Documentation**
  - 30 Sites

Supporting transient patient populations and transient healthcare teams

- **Military Treatment Facilities**
  - 60+ Hospitals
  - 350+ Medical Clinics
  - ***White House Medical Unit***
- **AHLTA-Theater (As of 31 Jan 2010)**
  - 15 Theater Hospitals, 262 Forward Resuscitative sites
  - 15 U.S. Naval Ships
  - 8.36 million orders of ancillary services (laboratory, radiology, pharmacy)
  - 3.16 million outpatient encounters captured in AHLTA-Theater

Service Member Health Care Continuum

Health Care is Local…Information is Global

Civilian Care

Recruitment

Accession/Training

VA Care

Routine Care

Virtual Lifetime Electronic Record (VLER)

Transition & Benefits Assessment

Readiness/ Pre-Deployment

Care at home/Post-deployment

Care in Transit

Deployed/Theater Care

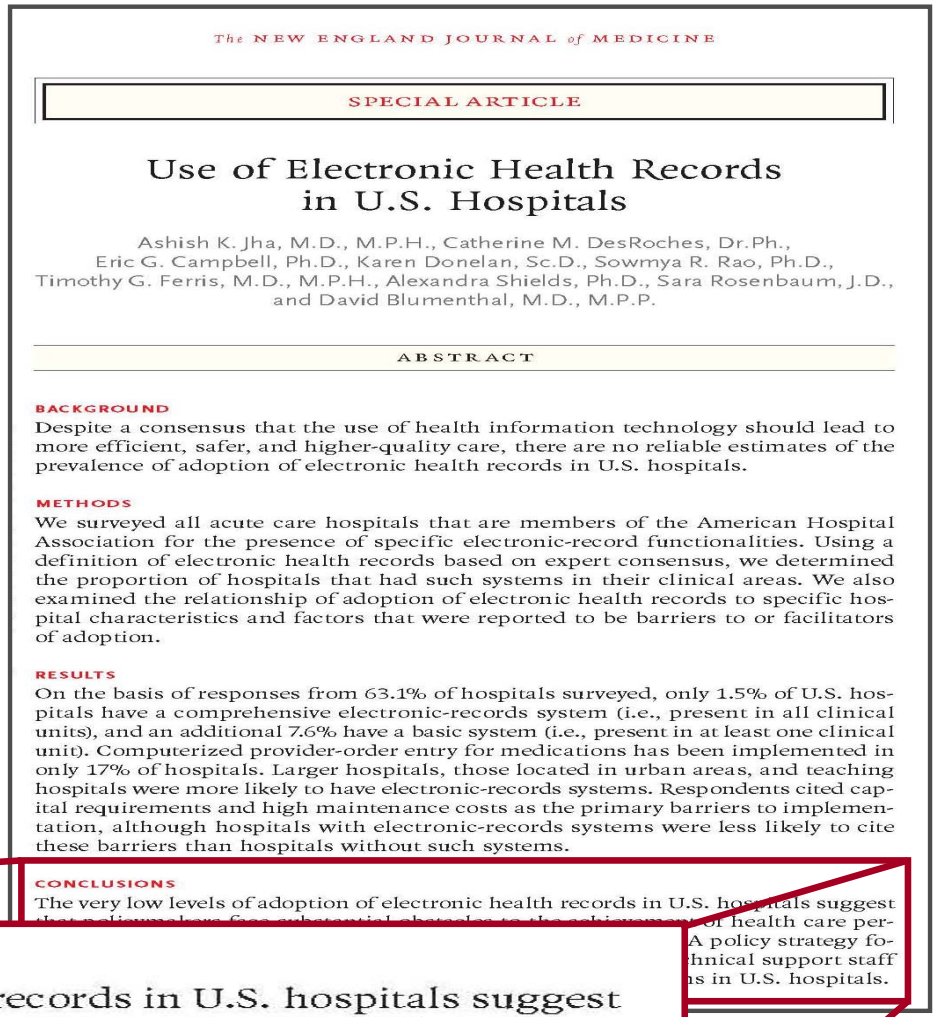
Challenges

- **Development of functional requirements**
  - Business process
  - Capability gaps
  - Cost estimates
  - Competing Stakeholders
- **Maintainability/ Interoperability**
  - System band aids/Quick fixes
  - Training and Support
  - Unplanned insertions
  - Service unique applications
  - Dependent upon external partners
  - Legacy/antiquated HW/SW
  - System backward compatibility
- **Acquisition Process**
  - MHS contracting process
  - OPTEMPO
  - Information Assurance
  - DBT Certification
- **Enterprise Architecture**
  - Many single points of failure
  - Complicated due to band aid fixes
- **Theater Communications and Bandwidth**
  - Inconsistent bandwidth
  - Theater security policies

New England Journal of Medicine Article

"Very low levels of adoption of electronic health records in US Hospitals"

- "1.5% US Hospitals have a comprehensive electronic records system"
- "7.6% US Hospitals have a basic electronic records system"
- "17% US Hospitals have computerized provider-order entry for medications"



The NEW ENGLAND JOURNAL of MEDICINE

SPECIAL ARTICLE

Use of Electronic Health Records in U.S. Hospitals

Ashish K. Jha, M.D., M.P.H., Catherine M. DesRoches, Dr.Ph., Eric G. Campbell, Ph.D., Karen Donelan, Sc.D., Sowmya R. Rao, Ph.D., Timothy G. Ferris, M.D., M.P.H., Alexandra Shields, Ph.D., Sara Rosenbaum, J.D., and David Blumenthal, M.D., M.P.P.

ABSTRACT

BACKGROUND

Despite a consensus that the use of health information technology should lead to more efficient, safer, and higher-quality care, there are no reliable estimates of the prevalence of adoption of electronic health records in U.S. hospitals.

METHODS

We surveyed all acute care hospitals that are members of the American Hospital Association for the presence of specific electronic-record functionalities. Using a definition of electronic health records based on expert consensus, we determined the proportion of hospitals that had such systems in their clinical areas. We also examined the relationship of adoption of electronic health records to specific hospital characteristics and factors that were reported to be barriers to or facilitators of adoption.

RESULTS

On the basis of responses from 63.1% of hospitals surveyed, only 1.5% of U.S. hospitals have a comprehensive electronic-records system (i.e., present in all clinical units), and an additional 7.6% have a basic system (i.e., present in at least one clinical unit). Computerized provider-order entry for medications has been implemented in only 17% of hospitals. Larger hospitals, those located in urban areas, and teaching hospitals were more likely to have electronic-records systems. Respondents cited capital requirements and high maintenance costs as the primary barriers to implementation, although hospitals with electronic-records systems were less likely to cite these barriers than hospitals without such systems.

CONCLUSIONS

The very low levels of adoption of electronic health records in U.S. hospitals suggest that policymakers face substantial obstacles to the achievement of health care performance goals that depend on health information technology. A policy strategy focused on financial support, interoperability, and training of technical support staff may be necessary to spur adoption of electronic-records systems in U.S. hospitals.

CONCLUSIONS

The very low levels of adoption of electronic health records in U.S. hospitals suggest that policymakers face substantial obstacles to the achievement of health care performance goals that depend on health information technology. A policy strategy focused on financial support, interoperability, and training of technical support staff may be necessary to spur adoption of electronic-records systems in U.S. hospitals.

Health Information Technology (IT)

"To improve the quality of our health care while lowering its cost, we will make the immediate investments necessary to ensure that, within five years, all of America's medical records are computerized. This will cut waste, eliminate red tape and reduce the need to repeat expensive medical tests." – President Obama

- American Recovery and Reinvestment Act
  - Cash incentives up to $44,000 starting in 2011 for practices to adopt EHRs
  - $54 billion: total money incentives under act

10 Lessons Learned from the DoD

1 How You Do It

- Must support current workflow
  - registration
  - nursing notes
  - clinical encounters
  - laboratory results
- Customizable EHR
  - Promoting efficiency
  - Preserving your current business practices

2 Try It…You'll Like it

- Essential to test or pilot EHR system before acquiring it
  - Test either web-based or standalone system

- Include all users in testing

#3 New and Shiny May Not Be Best

- Test the ergonomics of the hardware it will be running on
- The newest system may not be best for your practice
  - Nurses may want a computer on a cart
  - Physicians may want a wireless tablet
  - Administrators may only require an ergonomic keyboard

4 Halo™ 3…Level 6

- Purchase intuitive system that is easy and quick to learn

- Goal of EHR is to leverage modern technologies for:
  - greater clinical efficiency
  - higher quality
  - safer delivery of care

5 See One, Do One, Teach One

- A hybrid mix of classroom, one-on-one, ‘over-the-shoulder’ and computer-based training versus standard institution-led training
- Computer or Web-based training can provide early familiarization

6 The Web Is Now

- Third party vendor hosting EHR versus running on a server
  - Eliminates in house server costs
- Web-hosted solution for smaller practices
- Virtualized solutions
  - Provide look and feel of a web-based product
  - Virtual desktop solution

7 Look Ma…No Hands

- Wireless tablets and notebooks and carts
  - more integrated, quicker and easier

8 How Did I Get In Here

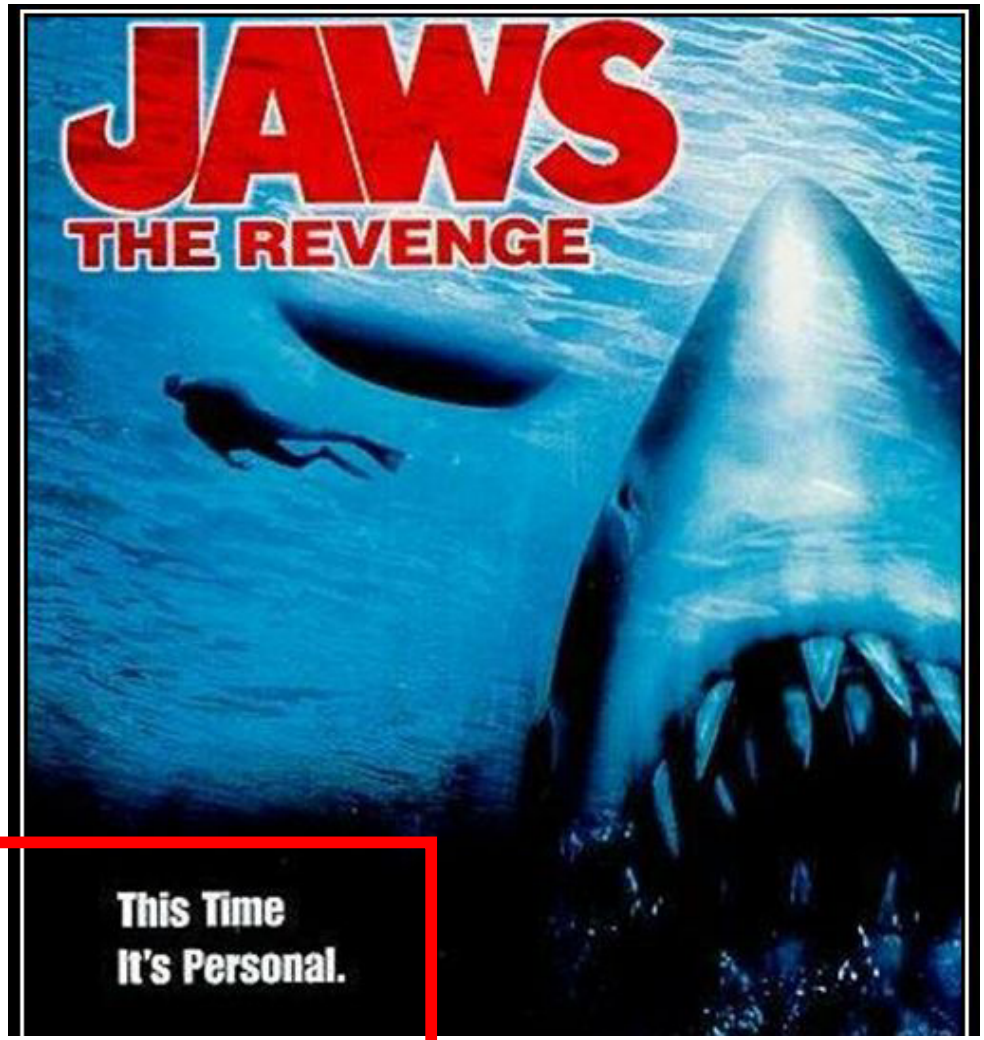
- Multiple methods to input clinical healthcare data
  - Dropdown menus
  - Templates
  - Auto fillers
  - Macros
  - Scribe
  - Speech Recognition
- Support Workflow

9 All For One and One For All

- All staff must be included in the decision of any EHR purchase
- Change is not always accepted so empowering staff to get their “buy in” will help with adoption

10 Make It Personal

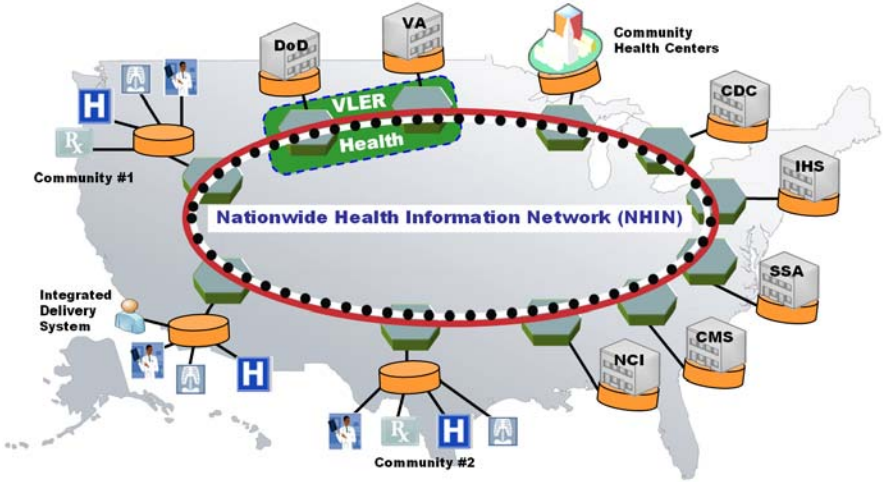
- Patient centric care
  - Mobility
- Patient portal
  - Email provider
  - Refill medication
  - Make appointments
  - Health journal



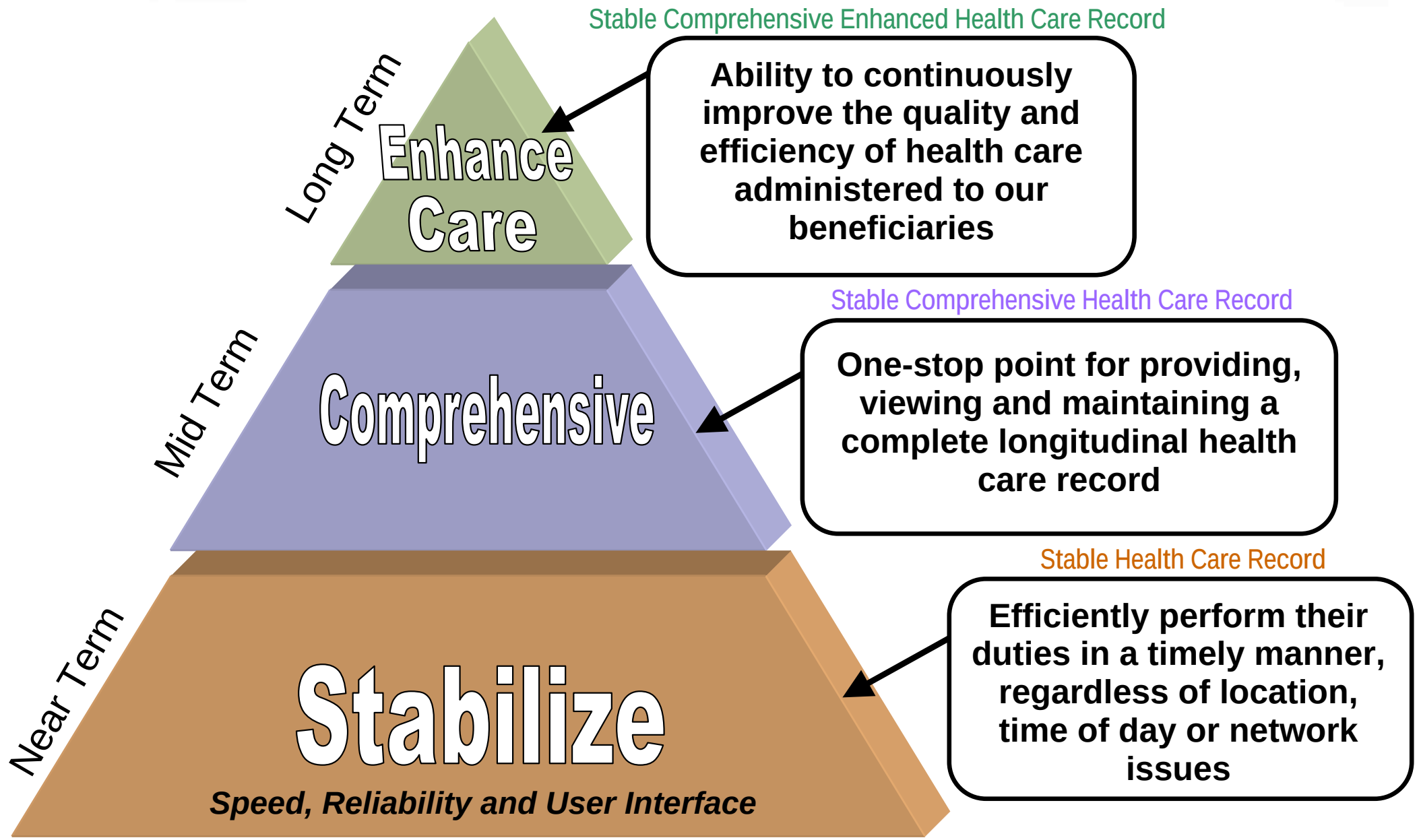
Bonus: Sharing is Caring

- Goal to share healthcare data throughout the nation

- The Nationwide Health Information Network "dial-tone" for the future and broker of healthcare data



DoD Electronic Health Record - Strategy



Top 10 Lessons Learned

- 1. How You Do It
- 2. Try It…You'll Like It
- 3. New and Shiny May Not Be Best
- 4. Halo Level 3
- 5. See One, Do One, Teach One
- 6. The Web is Now
- 7. Look Ma…No Hands
- 8. How Do I Get In Here
- 9. All for One and One for All
- 10. Make It Personal
- ***Bonus***: Sharing is Caring

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Questions???

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Closing Slide

For more information visit:

Booth #3107 in Hall C

or on the Web at:

dhims.health.mil

“Protecting our Service Members as they Protect Us”

Thursday, March 4, 2010 – 10:00 – 11:00 am

MAJ Frank Tucker, Chief System Architect, JMIS